

Chapter 11. Colorado River Hydrologic Region

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March 21, 2005

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Dear Paul,

I realize your deadline to receive comments on Bulletin 160 was March 18. I could not get Vol. 3 done until this weekend. I hope these comments are still of value. Therefore, I am faxing them to you this morning. My comments are on Chapter One, Chapter 10 and Chapter 11.

Page 1-6: Figure 1-3: Since much of the state receives only less than 4" average annual precipitation, it seems that your color scheme should have a shade for "less than 6 inches per year". Same comment for Figure 1-4, 5, 6.

Page 1-11: Third line from top: "does changes" should be "do change".

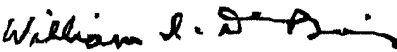
Page 1-14: (This comment pertains generally to the whole bulletin.) It seems that a book printed in 2006 ought to have statistics updated past 2001, even though the analysis is only three particular years of 98, 00 and 01.

Page 10-1: Sixth line from top: "dry lakes" should be either "usually dry" or "ephemeral". Under "climate", third and fourth sentences: it isn't clear if you are "4 inches" of snow, rain, or precipitation. (Same for 2 inches for Death Valley.)

Page 10-5: Second paragraph, lines 3 & 4 seem to infer that humans "graze". Line 14, I suggest omitting the "infamous". Third paragraph, line one, I suggest omitting "ambitious".

Page 10-9: First line of paragraph 6, omit "the" before "agriculture".

Chapter 11: I have many suggestions on this chapter. I am faxing the pages with comments. I hope the product is legible. Thanks for considering my slightly late paper.



William I. DuBois
California Farm Bureau Federation

Attachments: 10 pages

Chapter 11. Colorado River Hydrologic Region

Setting

The Colorado River Hydrologic Region is in southeast California. The Colorado River forms most of the region's eastern boundary and Mexico forms its southern boundary (Figure 11-1 is a map and table of statistics that describe the region). The region includes all of Imperial County, approximately the eastern one-fourth of San Diego County, the eastern two-thirds of Riverside County, and about the southeastern one-third of San Bernardino County. The Colorado River Region contains 12 percent of the State's land area. It has many bowl-shaped valleys, broad alluvial fans, sandy washes, and hills and mountains. *AND LOTS OF ROCKS AND SOME SANDHILLS*

Owing to hydrologically-determined boundaries, the Colorado River region includes a portion of the Mojave Desert, primarily that part of the region within San Bernardino County and eastern Riverside County. The area to the east and south of the Mojave Desert is a portion of the Sonoran Desert. Elevations in the region mostly range from 1,000 to 3,000 feet in the Mojave Desert to less than 1,000 feet along the Colorado River, to more than 200 feet below mean sea level in the Coachella and Imperial Valleys. Mountain peaks attain elevations of 6,000 to 7,000 feet. Many of the valleys contain playas. Some playas are quite large. Bristol Dry Lake, located near the Mojave National Preserve, covers more than 50 square miles.

Climate

Nearly all of the Colorado River Region has a subtropical desert climate with hot summers and mostly mild winters, and the average annual rainfall is quite small. Average annual precipitation ranges from three to six inches, most of which occurs in the winter. However, summer storms do occur and can be significant in some years. Clear and sunny conditions typically prevail. The region receives from 85 to 90 percent of possible sunshine each year, the highest value in the United States. Winter maximum temperatures are mild, but summer temperatures are very hot, with more than 100 days over 100 degrees Fahrenheit each year in the Imperial Valley.

Population

In 2000, the estimated population for the Region was about 606,000, which represented an increase of 31 percent from the 1990 population. More than half of the region's population resides in the Coachella Valley. Most of the remaining population is in the Imperial Valley and in the corridor between the cities of Yucca Valley and Twenty-nine Palms along Highway 62. Between the years 2000 to 2030, the California Department of Finance projects that the regional population will almost double to 1,166,550 people. Figure 11-2 provides a graphical depiction of the Colorado River region's total population from year 1960 through year 2000, with projections to year 2030.

Land Use

The region is a land of unequalled agricultural bounty with a growing urban sector, and large expanses of open, wild terrain. The U. S. Bureau of Land Management administers much of the Region, but many other entities have responsibilities.

Famous parks in the region include Joshua Tree National Park, the Mojave National Scenic Preserve, Anza-Borrego Desert State Park, and the Salton Sea and the Picacho State Recreation Areas. There are

also several areas under some kind of preservation or managed status, including national recreation and wilderness areas, various preserves and wildlife refuges, and Indian reservations.

Despite the arid conditions, significant areas of agricultural and urban land uses exist in the region. The most prominent of these uses belongs to agriculture. More than \$1.5 billion of agricultural commodities are produced in the region annually. Over 600,000 acres of land are farmed each year. The largest area of farming occurs in the Imperial Valley where over 450,000 acres of land are farmed annually. More than 93,000 acres are farmed in the Palo Verde Valley, followed by 60,000 in the Coachella Valley. Smaller, but equally important agricultural operations are occurring in the Bard and Mohave Valleys.

A wide variety of crops are planted and harvested in the region, some of which are seasonally controlled. In terms of acres, alfalfa is the leading crop produced in the region. Almost 250,000 acres were cultivated in 2000, with 180,000 acres occurring in the Imperial Valley. Although constrained by climate, winter and spring vegetables, which include carrots, broccoli, lettuce, onions, and melons, rank second in overall acres. Of the 150,000 acres harvested, almost 100,000 acres of the vegetables harvested in 2000 came from the Imperial Valley.

The Coachella and Bard Valleys are noteworthy for citrus and subtropical fruit production, especially dates. Also, the table grape industry in the Coachella Valley is well established.

The cattle industry in Imperial Valley is extremely important to the valley's \$1 billion per year agricultural production. In 2001, the cattle industry, with a value of \$243 million, ranked as the third highest-valued commodity produced in the Valley. Ranked first were vegetable and melon crops worth \$403 million, while field crops were worth \$285 million.

Other important crops grown in the region include wheat, sugar beets, and Sudan grass. Although less cotton is grown now than at its peak in the early 1980s, cotton is still grown in the region, mostly in the Palo Verde Valley. IMPERIAL

It should be noted that multiple-cropping is prevalent in the Imperial, Palo Verde, Coachella, and Bard Valleys. In 2000, it was estimated that over 100,000 acres were double-cropped in the region.

Contrasting urban land uses co-exist with agriculture in the region. In the Imperial and Palo Verde Valleys and the southern one-half of the Coachella Valley, small to moderately sized cities and communities exist which provide support for the surrounding agricultural activities. There are also

Salton Sea

The present day Salton Sea was formed in 1906, when Colorado River water flowed through a break in a canal that had been constructed along the U.S./Mexican border to divert the river's flow to agricultural lands in the Imperial Valley. Until that break was repaired in 1907, the full flow of the river was diverted into the Salton Sink, a structural trough whose lowest point is about 278 feet below sea level.

Historically, the Colorado River's course has altered several times. At times, the river discharged to the Gulf of California as it does today. At other times it flowed into the Salton Sink. Lake Cahulla, the name used for any of the several prehistoric lakes to have occupied the Salton Sink, dried up some 300 years ago. In the past 2000 years, archaeological records indicate that the Colorado River actually headed northwest into the Salton Sink or Trough more often than it headed south into the Gulf of California. IN THAT PERIOD,

SURFACE ELEVATION WAS MAINTAINED GENERALLY ABOUT 40' ABOVE SEA LEVEL. THE LAKE'S

AND NON-AGRICULTURAL

numerous single-family residential dwellings scattered throughout the region. Many of the business and industrial sectors in the Cities of Blythe, Brawley and Indio provide this kind of support.

ROUND
In the northern Coachella Valley, the urban area continues to expand between the Cities of Palm Springs and Indio. Other cities in this area include Palm Desert, Rancho Mirage, and La Quinta. This corridor is characterized by the presence of numerous extensively landscaped residential developments, expansion of local business and consumer service centers, construction of luxury hotels and resort properties, and the operation of over 100 private and public golf courses. Upscale commercial and residential expansion, which has been underway for several decades, is continuing at a robust pace. The expansion supports the region's recreation and tourism industry and its growing number of wealthy retirees and part-time residents.

ALTHOUGH SMALLER IN SCALE, THE REGION'S URBAN AREA IN THE CORRIDOR BETWEEN THE CITIES OF EL CENTRO AND IMPERIAL AND WITHIN THE CITY OF CALEXICO HAS ALSO BEEN EXPANDING. BUSINESS AND CONSUMER SERVICES THERE SUPPORT CONSUMERS IN THE IMPERIAL VALLEY AND FROM THE NEIGHBORING MEXICALI VALLEY, WITH A SECOND PORT OF ENTRY OPENED IN 2001 TO SUPPORT INCREASED TRAFFIC RESULTING FROM NAFTA.

AND NOT SO WEALTHY

THIRD

Water Supply and Use

ABOUT 85 PERCENT OF THE REGION'S WATER SUPPLY IS FROM SURFACE DELIVERIES FROM THE COLORADO RIVER. WATER FROM THE RIVER IS DELIVERED INTO THE REGION THROUGH THE ALL-AMERICAN AND COACHELLA CANALS, LOCAL DIVERSIONS, AND THE COLORADO RIVER AQUEDUCT BY MEANS OF AN EXCHANGE FOR STATE WATER PROJECT (SWP) WATER. THE COLORADO RIVER IS AN INTERSTATE AND INTERNATIONAL RIVER WHOSE USE IS APPORTIONED AMONG THE SEVEN COLORADO RIVER BASIN STATES AND MEXICO BY A COMPLEX BODY OF STATUTES, DECREES, AND COURT DECISIONS KNOWN COLLECTIVELY AS THE "LAW OF THE RIVER" (Table 11-1). LOCAL SURFACE WATER, GROUNDWATER, AND THE SWP (Table 11-6) PROVIDE THE REMAINDER OF WATER TO THE REGION. MANY OF THE ALLUVIAL VALLEYS IN THE REGION ARE UNDERLAIN BY GROUNDWATER AQUIFERS THAT ARE THE SOLE SOURCE OF WATER FOR LOCAL COMMUNITIES, HOWEVER. THERE ARE OTHER ALLUVIAL VALLEYS THAT HAVE POOR QUALITY WATER THAT IS NOT SUITABLE FOR POTABLE USE. FIGURE 11-4 PROVIDES A GRAPHICAL PRESENTATION OF ALL OF THE WATER SUPPLY SOURCES THAT ARE USED TO MEET THE DEVELOPED WATER USES WITHIN THIS HYDROLOGIC REGION FOR YEARS 1998, 2000 AND 2001. FIGURE 11-3 PRESENTS A BAR CHART THAT SUMMARIZES ALL OF THE DEDICATED AND DEVELOPED URBAN, AGRICULTURAL AND ENVIRONMENTAL WATER USES WITHIN THIS HYDROLOGIC REGION FOR YEARS 1998, 2000 AND 2001.

Acronyms Used In the South Coast Regional Report

BWD – Bard Water District
CVWD – Coachella Valley Water District
DFG – California Department of Fish and Game
DWA – Desert Water Agency
DWR – California Department of Water Resources
IID – Imperial Irrigation District
LCR MSCP – Lower Colorado River Multi-Species Conservation Program
MWD – Metropolitan Water District of Southern California
PVID – Quantification Settlement Agreement
QSA – Quantification Settlement Agreement of 2003
SGPWA – San Geronimo Pass Water Agency
SDCWA – San Diego County Water Authority
SWP – State Water Project
USBR – United States Bureau of Reclamation
USFS – United States Fish and Wildlife Service

FYI
ALGODONES IS THE SECOND PORT OF ENTRY IN IMPERIAL COUNTY

Table 11-1
Key Elements of the Law of the River

Document	Date	Main Purpose
Colorado River Compact	1922	The Upper Colorado River Basin and the Lower Colorado River Basin are each provided a basic apportionment of 7.5 maf annually of consumptive use. The Lower Basin is given the right to increase its consumptive use an additional 1 maf annually.
Boulder Canyon Project Act	1928	Authorized USBR to construct Boulder (Hoover) Dam and the All-American Canal (including the Coachella Canal), and gave congressional consent to the Colorado River Compact. Provided that all users of Colorado River water must enter into a contract with USBR for use of the water.
California Limitation Act	1929	Limited California's share of the 7.5 maf annually apportioned to the Lower Basin to 4.4 maf annually, plus no more than half of any surplus waters.
Seven Party Agreement	1931	An agreement among seven California water agencies/districts to recommend to the Secretary of the Interior how to divide use of California's apportionment among the California water users.
U.S. - Mexican Treaty	1944	Apportions Mexico a supply of 1.5 maf annually of Colorado River water except under surplus or extraordinary drought conditions.
U.S. Supreme Court Decree in <i>Arizona v. California, et al.</i>	1964	Apportions water from the mainstream of the Colorado River among the Lower Division states. When the Secretary determines that 7.5 maf of mainstream water is available, it is apportioned 2.8 maf to Arizona, 4.4 maf to California, and 0.3 maf to Nevada. Quantifies tribal water rights for specified tribes, including 131,400 af for diversion in California.
Colorado River Basin Project Act	1968	Authorized construction of the Central Arizona Project. Requires Secretary of the Interior to prepare long-range operating criteria for major Colorado River reservoirs.
U.S. Supreme Court Decree in <i>Arizona v. California, et al.</i> supplemental decrees	1979, 1984, 2000	Quantifies Colorado River mainstream present perfected rights in the Lower Basin states.
Quantification Settlement Agreement and Related Agreements	2003	Complex package of agreements that, among other things, further quantifies priorities established in the 1931 Seven-Party Agreements and enables specified water transfers. IN CALIFORNIA (?)

Within California, the Seven Party Agreement of 1931 (Tables 11-2, 11-3, 11-4) established local agencies' apportionments of Colorado River water, with Priority 3 further defined in the Quantification Settlement Agreement of 2003 (Table 11-5). The Secretary of the Interior apportions water to California water users according to the Seven Party and the Quantification Settlement Agreements (QSA). Water use that occurs within a state is charged to that state's allocation. Thus, federal water uses, including uses associated with federal reserved rights (e.g., tribal water rights), must also be accommodated within California's basic apportionment of 4.4 million acre-feet per year plus one-half of any available surplus water.

For the past 50 years, the Imperial Irrigation District (IID), the region's largest water district, has implemented programs and completed projects designed to improve the efficiency of its water conveyance system. Under the 1988 IID/MWD Water Conservation Agreement, and Approval Agreement in 1989, 15 new projects were completed, including the construction of three lateral interceptors serving more than 83,400 acres, the building of two regulatory reservoirs and four interceptor reservoirs, concrete-lining of nearly 200 miles of lateral canals, and installation of new hardware and software to upgrade the existing telemetry equipment on its conveyance system, along with a new, state-of-the-art Water Control Center. These infrastructure upgrades complemented IID programs including farmer-initiated measures, canal lining, canal seepage recovery, and regulatory reservoirs.

In addition to the improvements to its water conveyance system, IID also implemented 13- and 21-Point Water Conservation Programs. IID also provides training and technical assistance to its agricultural customers through its Irrigation Management Services program. Its most valued service has been the dissemination of information to farmers and irrigation personnel on methods to improve their irrigation operations. Moreover, the program actively promotes the use of the following methodologies and instruments to improve irrigation efficiencies: level basin drip systems, level basin laser-leveling, irrigation scheduling, portable pump-back and tailwater return systems, salinity assessment, soil moisture sensors. IID has a training program that it uses to provide growers with flow records, based on metering of the delivery and tailwater, for a particular irrigation.

Excluding the water supply savings in the IID/MWD agreement, improvements to the water distribution and other water conservation techniques save more than 525,000 acre-feet of water annually. Of this amount, the IID estimates that close to 400,000 acre-feet of the savings are attributable to the efforts by its agricultural customers.

CVWD has also made important improvements to its water conveyance system. Water is delivered to its agricultural customers through metered, underground pipelines. The conveyance system is computerized, which adds to the system's efficiency. In addition to the infrastructure improvements, CVWD provides technical services to its agricultural and residential customers on efficient irrigation management.

The districts have also examined their water operation policies and procedures. This review has resulted in modifications in the delivery procedures that have improved efficiencies and assisted farmers in their irrigation scheduling.

Palo Verde Irrigation District (PVID) has installed telemetry controls for more than 132 key control structures, which has improved the management of water in its canals. Most of the fields in the PVID and other district service areas have been laser-leveled. Flattened fields help improve the uniform distribution of water. All deliveries to the PVID's retail agricultural customers are measured.

PVID, IID, and CVWD, with the University of California Cooperative Extension and DWR, have installed CIMIS stations to collect the climatological data its agricultural water users need to estimate crop evapotranspiration (ETAW) and develop irrigation schedules. Water users are made aware of improvements in irrigation management and crop growing procedures through local farmers and water conservation advisory boards.

To assist CVWD, PVID entered into an emergency six-month following program in 2003. More than 16,417 acres of farmland were idled and the unused water, 41,000 acre-feet, were transferred to CVWD.

IID, PVID, and CVWD signed a Memorandum of Understanding Regarding Efficient Water Management Practices by Agricultural Water Suppliers in California. By signing the MOU, the districts demonstrated their intention to adopt and use agricultural water management plans that would serve and benefit the agricultural water management and have beneficial environmental impacts within their service areas. IID's 2002 *Agricultural Water Management Plan* has been endorsed by the Agricultural Water Management Council that oversees the MOU.

Growers in the major agricultural areas are using the latest irrigation hardware and management techniques to increase both the efficiencies of their operations and crop yields. In the Imperial Valley, it is common to see drip, micro-sprinklers, and drip tape systems being used along with the traditional systems of furrow, basin, and hand-move sprinklers. Drip tape is most commonly used for high-market value crops such as vegetables. Drip and micro-sprinkler systems are commonly used to irrigate the citrus and subtropical fruit orchards; less than 1 percent of the acres, mainly date palms, are flood irrigated.

Most irrigation operations with vegetables and truck crops in Coachella Valley use drip tape and hand-move sprinklers. Some furrow irrigation is still being used. Citrus and subtropical fruit orchard irrigation is done with drip and micro-sprinklers; although flood or basin irrigation is still being used for mature date palms. Almost all the vineyards are being irrigated by some type of drip system; only a very small portion still rely on furrow irrigation. The use of overhead sprinkler systems are a common sight in vineyards throughout the valley, where they are used for frost protection and the inducement of vine dormancy for earlier fruit-sets.

Although most of the water conservation has been directed to agriculture, water districts in the Coachella Valley provide technical assistance to the managers of the large landscaped areas, such as golf courses, to evaluate and offer suggestions about irrigation hardware and operations. CVWD provides loans to its retail customers for irrigation upgrades. Desert Water Agency offers classes in English and Spanish to homeowners, property managers, and government and school personnel on irrigation efficiency strategies and tools.

Salton Sea Ecosystem

The Salton Sea, a saline lake with a total dissolved solids of approximately 44,000 ppm (mg/L) – 25 percent greater than that of ocean water – is California's largest (surface area) lake and has been famous for its sport fishing and other recreational uses. It is also a federally designated repository to receive and store agricultural, surface, and subsurface drainage waters from the Imperial and Coachella valleys. The Salton Sea has a water surface elevation of about 228 feet below mean sea level.

Water imported from the Colorado River has created an irrigated agricultural ecosystem in the watershed. Consequently, wildlife and aquatic species, which are dependent upon habitat created by the discharge of agricultural return flows, are threatened by the increasing salinity of the sea, which has increased over time because of the concentration of salts through evaporation. The sea's importance to wildlife has grown as about 95 percent of California's wetlands in other areas have disappeared because of changes in land use.

The Salton Sea ecosystem, including the Sonny Bono Salton Sea National Wildlife Refuge, is considered a critical link on the International Pacific Flyway for migratory birds. The amount of freshwater inflow available to the Sea will be affected by water transfers to the South Coast region as well as by water conservation in Mexico. As required by the State Water Resources Control Board, IID ~~is required to~~ provide a fixed amount of freshwater inflow for mitigation from 2003 through 2017.

fish recovery efforts. In a program which began in 1989, USBR and other federal and state agencies have cooperated to capture, rear, and successfully reintroduce about 15,000 razorback sucker larvae in Lake Mohave.

Instream flows in the mainstem and key tributaries are being evaluated as components of native fish recovery efforts. State and federal agencies are conducting studies to estimate base flow and flushing flow needs for listed and sensitive species in various river reaches.

In the Lower Colorado River Basin, representatives of the three states, federal agencies, several Native American tribes, and Colorado River water and power users are in the final stages of development of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). The LCR MSCP is intended to provide long-term compliance with the federal and California Endangered Species Acts and California fully protected species statutes.

The proposed LCR MSCP is a 50-year program that would provide more than 8,100 acres of high quality aquatic, wetland, and native broadleaf riparian habitat along the Lower Colorado River from Lake Mead to the Southerly International Boundary with Mexico. The restored and maintained habitats would provide ecological benefits and mitigate potential impacts to 26 covered species being addressed within the LCR MSCP. Some of the proposed habitat restoration may involve the conversion of existing agricultural lands to native riparian habitats, as well as removal of non-native salt cedar (tamarisk) and replacement with native broadleaf riparian habitat – cottonwood, willow, and mesquite, for example.

Additionally, the LCR MSCP participants plan to rear and repatriate to the mainstream more than 660,000 razorback suckers and 620,000 bonytail during the 50-year LCR MSCP. More than 360 acres of backwater habitats would be created along the Lower Colorado River to provide nursery habitat for juvenile native fish and additional wetland habitat for marsh species and migratory waterfowl.

California's Colorado River water and power using agencies and entities are participants in the LCR MSCP planning process. The LCR MSCP is expected to begin implementation in early 2005. The Bureau of Reclamation, in conjunction with representatives of the three states and the U.S. Fish and Wildlife Service, will be the agency primarily responsible for implementing the LCR MSCP.

The Salton Sea, with its increasing salinity, selenium, and eutrophication, is the primary focus of water quality issues in the Colorado River region. The largest sources of the sea's inflow are the New and Alamo rivers and the Imperial Valley agriculture drains, which contribute pesticides, nutrients, selenium, and silt. The New River, the most polluted river in the U.S., originates in Mexicali, Mexico, flows across the border, through the city of Calexico, and then north, emptying into the Salton Sea. It conveys urban runoff, untreated and partially treated municipal and industrial wastes, and agricultural runoff from the Mexicali and Imperial valleys. These pollution sources contribute pesticides, pathogens, silt, nutrients, trash, and VOCs (the latter, primarily from Mexican industry) to the sea. Both the Alamo River, which originates just 2 miles south of the border and also flows north to the Salton Sea, and the Coachella Valley Stormwater Channel, which flows south to the sea, consist mainly of agricultural return flows from the Imperial and Coachella valleys, respectively. Both the Coachella Valley Stormwater Channel and the Palo Verde Outfall Drain, which also drains to the sea, are heavily contaminated with pathogens.

reconstruct

INCORRECT

This flows back into the mainstream of the Colorado River just below the PVI DISTRICT

Table 11-7

Existing Colorado River Region Water Conservation Actions / Agreements Since 1980

Year	Action	Participants	Comments/Status	Estimated Savings
1980	Line 49 miles of Coachella Canal	USBR, CVWD, MWD	Project completed.	132 taf/yr
1988	IID distribution system improvement and on-farm water management projects designed to conserve 110 taf/yr.	IID, MWD	Project completed. Under QSA agreement extends through 2037 (2047, if not terminated by SDCWA; 2077, if renewed by mutual consent of IID / SDCWA) Conservation projects - canal lining, regulatory reservoirs, lateral spill interceptor canals, tailwater return systems, non-leak gates, 12-hour water delivery, drip irrigation, and system automation. MWD funded \$98.5 million (1988\$) for program costs; pays O&M for duration of agreement.	Conservation verification in 1998 - 107 taf
1992	Groundwater banking in Arizona	MWD, Central Arizona WCD, So. Nevada WA	Test program to bank up to 300 taf.	MWD and SNWA have stored 139 taf in Arizona groundwater basins.
1992	PVID land fallowing	PVID, MWD	Project completed. Two-year land fallowing test program. Covered 20,215 acres in PVID. MWD paid \$25 million to farmers over a two-year period.	188 taf were made available, but the water was subsequently released from Lake Mead when flood control releases were made from the reservoir.
1995	Partnership agreement	USBR, CVWD	Provides, among other things, for studies to optimize reasonable beneficial use of water in the district.	N/A
2003	Water transfer agreement	IID, SDCWA, CVWD	Initial term of 35 years; 45 years if not terminated by SDCWA; 75 years if renewed by mutual consent of IID / SDCWA. SDCWA pays for water transferred & to Sea.	In 2003, SDCWA receives 10 taf and the Salton Sea receives 5 taf. By 2017, SDCWA amount increases to 100 taf and the Salton Sea amount increases to 150 taf. From 2018 through the remainder of agreement (2077, if extended), SDCWA would receive 200 taf (from 2001 on) and the Salton Sea would receive 0 acre-feet. For CVWD, it receives 4 taf in 2008 and 103 taf by 2024. This decreases to 100 taf in 2039, if agreement is extended.
2003	Land lease agreement	PVID, CVWD	PVID conserved and transferred water supplies to CVWD.	40.6 taf in 2003.
2003	Canal Lining	IID, CVWD, SDCWA, San Luis Rey River Indian Water Authority, other Indian tribes	Portions of the All American Canal and the Coachella Canal will be lined. SDCWA pays for construction and O&M. 16 taf will be provided for the Indian water rights settlement.	87.7 taf/yr - All American Canal 28 taf/yr - Coachella Canal
2003	IID / growers will implement projects to conserve up to 103 taf/yr.	IID, CVWD	Initial term 35 years; 45 years, if not terminated by SDCWA; 75 years if renewed by mutual consent of IID and SDCWA. CVWD pays for water transferred	In 2008, IID will transfer 4 taf to CVWD, increases to 103 taf/yr for 2026 - 2047. Decreases to 100 taf/yr, 2039 through 2077 (if extended)
2004	Proposed land fallowing	PVID, MWD	Proposed 35-year land fallowing program. MWD pays for water transferred.	Proposal for PVID to make up to 111 taf/yr of water available to MWD.

Relationship with Other Regions

After eight years of negotiations, the signing of the Quantification Settlement Agreement on October 10, 2003, facilitated a second long-term water transfer from the Imperial Irrigation District in the Colorado River Hydrologic Region to urban water users in the South Coast Hydrologic Region. It will also make possible the transfer of additional water to be obtained through lining of the All American and the Coachella Canals. The water transfer between IID and San Diego County Water Authority will help stabilize San Diego's and CVWD's water supplies, satisfy outstanding miscellaneous and Indian water rights, and provide funding that IID and farmers in the Imperial Valley will use for additional water conservation measures once the required fallowing is completed.

Although the facilities to deliver SWP water supplies to the region have yet to be built, CVWD and DWA receive their annual allocations of SWP water through an exchange agreement with the South Coast Region's largest water wholesale agency, MWD. These districts are also participants in another agreement that delivers and stores water from the Colorado River in the Coachella Valley's largest groundwater basin during high flows.

Water districts in both regions are also cooperating in water conservation and land fallowing programs. The 1988 IID/MWD Water Conservation Agreement resulted in the conservation of water supplies from the building of new facilities, water system automation, and the implementation of technical assistance programs for farmers within the IID water service area. The conserved water is delivered to MWD.

MWD and PVID are negotiating the terms for a 35-year land fallowing, crop rotation, and water supply agreement. A certain percentage of lands normally farmed in the Palo Verde Valley would be fallowed each year. Water for these lands would be delivered to MWD. Some of this water would be used to facilitate the transfer agreement between SDCWA and the IID.

update

Looking to the Future

On October 10, 2003, MWD, IID, CVWD and the Secretary of the Interior signed the Colorado River Water Delivery Agreement: Federal Quantification Settlement Agreement (QSA) for the purpose of Section 5(B) of the Interim Surplus Guidelines. This agreement specifies, how, over time, California will reduce its use of Colorado River water to its basic apportionment of 4.4 million acre-feet per year in years for which the Secretary of the Interior does not declare a surplus on the Colorado River.

The QSA will remain in effect for 35 years, or 45 years if not terminated by SDCWA, or 75 years if renewed by mutual consent of IID and SDCWA. The QSA is expected to achieve the goal sought by the other Colorado River Basin states and the federal government of reducing California's use of Colorado River water to its annual basic apportionment of 4.4 million acre-feet. This reduction will be achieved through, among other practices, transfer of water use from IID to SDCWA and to CVWD. While it is the intent of IID to transfer water saved through conservation, from 2003 through 2012 all of the water transferred to SDCWA will come from land fallowing. Fallowing for the transfer will decrease from a high of 90,000 acre-feet per year in 2012, until by 2017 all water transferred to SDCWA will come from conservation measures. In addition, land fallowing will occur to meet flow requirements (5,000 acre-feet per year in 2003, growing to 150,000 acre-feet in 2017) as environmental mitigation for the reduced agricultural return flows to the Salton Sea.

make clear that the two following programs are concurrent and additive give total effect of land fallowing in acres of land

The high level of agricultural activity in the region is reflected by the large agricultural water demand relative to other water uses. In 2000, agricultural water demand made up almost 85 percent of all applied water demands in the region. By contrast, urban use only accounted for 14 percent of total demand.

The Sea alone uses 30% + it is required for fish + birds!
Above average rainfall occurred during water year 1998. For water years 2000 and 2001, rainfall totals were below average; 2000 could be considered a dry year. In water year 1998, rainfall totals averaged 176 percent above average for the NWS station in Blythe, 104 percent of average for the El Centro 2 SSW station and 108 for Palm Springs.

Water year 2000 was very dry. Rainfall totals measured by the Blythe station for the year were only 17 percent of average; for El Centro, 10 percent of normal; and for Palm Springs, 35 percent of normal. Conditions improved slightly for water year 2001. The Blythe station measured rainfall that was 120 percent of normal. For El Centro, it was 78 percent of normal. For Palm Springs, it was 74 percent.

Despite the climatological conditions, demands for water supplies by the region's urban and agricultural users and the environment did not exhibit any large fluctuations during the period between 1998 and 2001. The total applied water demand for 1998 was 4,602,000 acre-feet. For 2000, the demand increased slightly to 4,726,900 acre-feet. In 2001, it decreased to 4,536,800 acre-feet.

Minor reductions in the irrigated crop acres occurred from 1998 to 2000, followed by a slight increase for 2001. Totals for the region were 761,760 acres in 1998, 731,890 acres for 2000, and 739,830 for 2001. Noticeable declines were observed for irrigated grains and other field crop categories. A steady increase was noted for the vegetables crops classified in the "other truck" category.

*This accounting summary is absolutely untrue!
Salton Sea must be considered a beneficial use
of water - otherwise IID would not be required
to fallow farm crops (land) in order to
transfer water. Salton Sea uses about
1/3 of the Colo R Water*